

What Is Claimed Is:

1 1. An equipment area network (EAN) for a plurality of pieces of equipment, comprising:
2 a plurality of local controllers each being dedicated and connected to an individual one of said
3 plurality of pieces of equipment, respectively;

4 a plurality of local Web servers each being dedicated and connected to an individual
5 one of said plurality of controllers, respectively; and

6 local isolation means for selectively isolating said equipment area network from other
7 networks outside of said equipment area network, said plurality of local Web servers being
8 individually connected to said isolation means.

1 2. The EAN of Claim 1, further including:
2 local browser means connected to said isolation means for selectively communicating with
3 said plurality of local Web servers, and with remotely located Web servers in said other
4 networks.

1 3. The EAN of Claim 1, wherein said plurality of local controllers each consist of a
2 programmable logic controller.

1 4. The EAN of Claim 1, wherein said local isolation means includes a plurality of local
2 router/switches each being connected to individual ones of said plurality of local Web servers
3 respectively, and to at least one of said other networks.

1 5. The EAN of Claim 2, wherein said local isolation means includes a plurality of local
2 router/switches each being connected to all of individual ones of said plurality of local
3 controllers, respectively, to individual ones of said plurality of local browser means,
4 respectively, and to at least one of said other networks.

1 6. The EAN of Claim 2, wherein said local browser means includes a plurality of Web
2 browsers each being individually connected to said local isolation means.

1 7. The EAN of Claim 5, wherein said local browser means includes a plurality Web
2 browsers, and said plurality of local router/switches are each connected to an individual one
3 of said Web browsers, respectively.

1 8. The EAN of Claim 6, wherein said plurality of Web browsers each include:
2 a PC; and
3 Web browser software means for programming said PC to provide Web browser
4 functions.

1 9. The EAN of Claim 7, wherein said plurality of Web browsers each include:
2 a PC; and
3 Web browser software means for programming said PC to provide Web browser
4 functions.

1 10. The EAN of Claim 4, further including a plurality of Ethernet input/output modules
2 connected to individual ones of said plurality of local router/switches, respectively.

1 11. The EAN of Claim 4, further including:
2 said plurality of local router/switches each having a unique address, respectively; and
3 said plurality of local Web servers each having the same network address.

1 12. The EAN of Claim 5, further including:
2 said plurality of local router/switches each having a unique address, respectively;
3 said plurality of local Web servers each having the same network address; and
4 said local browser means includes a plurality of Web browsers each having the same
5 address.

1 13. The EAN of Claim 11, further including a plurality of Ethernet input/output modules
2 each having the same network address, and each being connected to individual ones of said
3 plurality of local router/switches, respectively.

1 14. The EAN of Claim 12, further including a plurality of Ethernet input/output modules
2 each having the same network address, and each being connected to individual ones of said
3 plurality of local router/switches, respectively.

1 15. The EAN of Claim 1, wherein said plurality of local Web servers each further include
2 means for providing Web pages identifying their associated piece of equipment, optionally its

3 interconnection with other equipment included in the EAN, its present operating parameters,
4 and other data of interest relative thereto.

1 16. An equipment area network (EAN) comprising:
2 at least one piece of equipment;
3 a controller connected to said equipment;
4 a local Web server connected to said controller; and
5 isolation means connected to said Web server, for selectively isolating said EAN from
6 other networks.

1 17. The EAN of Claim 16, further including a local HMI Web browser connected to said
2 isolation means.

1 18. The EAN of Claim 16, wherein said controller is a programmable logic controller.

2 19. The EAN of Claim 16, wherein said isolation means consists of a router/switch.

1 20. The EAN of Claim 16, further including:
2 said controller consisting of a programmable logic controller; and
3 said isolation means consisting of a router/switch.

1 21. The EAN of Claim 17, wherein said local HMI Web browser includes:
2 a PC; and

3 Web browser software means for programming said PC to provide Web browser
4 functions.

1 22. The EAN of Claim 16, wherein said local Web server includes means for providing
2 Web pages identifying said piece of equipment, optionally its interconnection with other
3 equipment, its present operating parameters, and other data of interest relative thereto.

1 23. A method for providing an equipment area network (EAN) for each one or more
2 pieces of equipment or devices, wherein for each local piece of equipment the method
3 comprises the steps of:
4 connecting a local controller to the piece of equipment;
5 connecting a local Web server to said controller;
6 connecting a local router between said Web server and a computer network, for
7 providing isolation therebetween while allowing selective communication therebetween; and
8 assigning a unique network address to said router for devices outside the EAN.

1 24. The method of Claim 23, further including the steps of:
2 connecting at least one Ethernet based input/output module to said router for devices inside
3 the EAN.

1 25. The method Claim 23, further including the steps of:
2 connecting a spare port to said router for connection to one of the group consisting of a
3 laptop computer, sub-systems of said equipment, and other devices inside the EAN.

1 26. The method of Claim 23, further including the step of:

2 connecting a local HMI Web browser to said router.

1 27. The method of Claim 23, further including the steps of:

2 assigning the same network address, if an address is required, to each controller

3 associated with each piece of equipment; and

4 assigning the same network address to each Web server associated with each piece of
5 equipment.

1 28. The method of Claim 26, further including the steps of:

2 (A) configuring said router to receive requests from Web browsers both local and
3 remote to said EAN;

4 (B) responding to a request from a Web browser by having said router check the
5 source network address of the requesting browser;

6 (C) determining in response to a requesting local Web browser the destination
7 network address it is requesting;

8 (D) configuring said router to respond to a destination network address for a
9 remote Web server by using network address translation (NAT) to translate the associated
10 source network address;

11 (E) forwarding via said router to said remote Web server an answer to the request;

12 (F) receiving via said router a response from said remote Web server that it
13 received the answer; and

14 (G) forwarding the response to the associated said local Web browser of said EAN.

1 29. The method of Claim 28, further including after step (B) the steps of:

2 (H) determining in response to a requesting remote Web browser the destination
3 network address it is requesting;

4 (I) ignoring the request in response to the destination network address being for a
5 remote Web server;

6 (J) sending the request to the associated local Web server in response to the
7 destination network address being that of another local Web server;

8 (K) Operating the associated local Web server to check the source network address
9 of the Web browser making the request;

10 (L) responding to the request via the associated said local Web server using remote
11 privileges if the source network address is that of a remote Web browser; and

12 (M) forwarding a response via the associated said local router to the requesting
13 remote browser.

1 30. The method of Claim 29, further including after step (K) and before step (L) the step
2 of:

3 (N) authenticating via the associated said local Web server the password of the
4 requesting remote Web browser.

1 31. The method of Claim 29, further including after step (K) the steps of:

2 (O) responding to the request via the associated said local Web server using local
3 privileges if the source network address is that of a requesting local Web browser; and

4 (P) forwarding a response via the associated said local router to the requesting
5 local browser.

1 32. The method of Claim 29, further including after step (K) and before step (O) the step
2 of:

3 authenticating via the associated said local Web server the password of the requesting
4 local Web browser.

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